CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO.
FOR
ANDERSON LANDFILL, INC.
FOR
OPERATION AND PARTIAL CLOSURE OF
ANDERSON CLASS III LANDFILL
AND
CLASS II SURFACE IMPOUNDMENT
SHASTA COUNTY

Compliance with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, is ordered by Waste Discharge Requirements Order No. _____.

A. REQUIRED MONITORING REPORTS

Report	Due
1. Groundwater Monitoring (Section D.1)	See Table I
2. Annual Monitoring Summary Report (Section B.6)	31 January
3. Unsaturated Zone Monitoring (Section D.2)	See Table II
4. Leachate Monitoring (Section E.)	See Table III
5. Class II surface impoundment Monitoring (Section F.)	See Table III
6. Surface Water Monitoring (Section G.)	See Table IV
7. Storm Event Monitoring (Section H.)	As indicated
8. Response to a Release (Standard Provisions and Reporting Requirements)	As necessary

B. REPORTING REQUIREMENTS

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program, Order No. _____, and the Standard Provisions and Reporting Requirements. Reports that do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly compliance

with the waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer. The Discharger shall also comply with the following Reporting Requirements:

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of Order No. _____ for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **within 24 hours** of it or its agents first having knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, shall describe the measures being taken to prevent recurrences, and shall include a timetable for corrective actions.

2. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer.

   Such legible records shall show the following for each sample:

   a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
   b. Date, time, and manner of sampling;
   c. Date and time that analyses were started and completed, and the name of the laboratory and personnel performing each analysis;
   d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
   e. Calculation of results; and
   f. Results of analyses, and the MDL and PQL for each analysis.

3. A transmittal letter explaining the essential points shall accompany each monitoring report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, then it shall be stated in the transmittal letter.

   The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.

4. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

   a. For each monitoring point and background monitoring point addressed by the report, a description of:

      1) The time of water level measurement;

      2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

      3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;

      4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

      5) A statement that the sampling procedure was conducted in accordance with an approved Sample Collection and Analysis Plan.

   b. A map or aerial photograph showing the locations of waste management units, ancillary facilities, observation stations, and monitoring points.

   c. Tabulated monitoring data listing at least the previous five years worth of sample results from each respective monitoring point.

   d. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.

   e. Laboratory statements of results of all analyses evaluating compliance with requirements.

   f. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.

   g. A summary and certification of completion of all **Standard Observations** for the Unit(s), for the perimeter of the Unit(s), and for the receiving waters. **The Standard Observations shall be conducted at least weekly** and include:

      1) For the Unit(s):

         a) Date of weekly inspection and name of the person conducting the

inspection;

b) Evidence of ponded water at any point on the facility (show affected area on map);

c) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

d) Evidence of erosion and/or of day-lighted refuse.

e) Evidence of liquids in a previously dry leak detection system.

2) Along the perimeter of the Unit(s):

a) Date of weekly inspection and name of the person conducting the inspection;

b) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

c) Evidence, characteristics, and flow rate of liquids discharging through Unit 4 and/or 5 interceptor drains;

d) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

e) Evidence of erosion and/or of day-lighted refuse.

3) For receiving waters:

a) Date of weekly inspection and name of the person conducting the inspection;

b) Floating and suspended materials of waste origin – presence or absence, source, and size of affected area;

c) Discoloration and turbidity – description of color, source, and size of affected area;

d) Evidence of odors – presence or absence, characterization, source, and distance of travel from source;

e) Evidence of water uses – presence of water-associated wildlife;

f) Flow rate; and

g) Weather conditions – wind direction and estimated velocity, total precipitation during recent days and on the day of observation.

h. The quantity and types of wastes discharged and the locations in the Unit(s) where waste has been placed since submittal of the last such report.

1. The Discharger shall report by telephone any seepage from the disposal area **within 24 hours** after it is discovered. A written report shall be filed with the Regional Board **within seven days**, containing at least the following information:

   a. A map showing the locations(s) of seepage;

   b. An estimate of the flow rate;

   c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

   d. Verification that samples have been submitted for analyses of the Constituents of Concern and Monitoring Parameters, and an estimated date that the results will be submitted to the Regional Board; and

   e. Corrective measures underway or proposed, and corresponding time schedules.

2. The Discharger shall submit an **Annual Monitoring Summary Report** to the Regional Board covering the reporting period of the previous monitoring year. This report shall contain:

   a. All monitoring parameters and Constituents of Concern shall be graphed and tabulated so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Graphs shall be plotted to show the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data, as appropriate. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

   b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous five calendar years shall be presented in tabular form as well as on 3.5" computer diskettes or CD-Rom, either in MS-Access, ASCII, or in another file format acceptable to the Executive Officer. Data sets too large to fit on a single diskette may be submitted on disk in a commonly available compressed format (e.g. PKZIP). The Regional Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Section 20420(h)], in that this facilitates periodic review by the Regional Board.

   c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

   d. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours.

e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

f. An evaluation of the effectiveness of the leachate monitoring/control facilities, **including the results of the annual LCRS test**.

3. All required monitoring reports shall be submitted according to the following schedule:

Report Type	**Reference Table or Requirement Associated With Necessary Monitoring**	**Frequency of Submittal**	**Report Due Date**
Shallow and Deep Groundwater Monitoring	Table I - MRP	Semiannual	31 July and 31 January Annually
Unsaturated Zone Monitoring	Table II - MRP	Semiannual	31 July and 31 January Annually
Class II Surface Impoundment (LCRS) Leak Detection System Monitoring	Table III - MRP	Upon detection of liquid in a previously dry leak detection system	30 days after samples were taken and also include data in the appropriate Semiannual Monitoring Reports
Leachate Monitoring	Table III and Section E- MRP	Semiannually	31 July and 31 January Annually
Surface Water and Detention Pond	Table IV	Semiannually	31 July and 31 January Annually
Annual Monitoring Summary	Reporting Requirements B.6, MRP	Annually	31 January
Winterization Plan	Facility Specification C.10, WDR	Annually	15 September annually

MRP – Monitoring and Reporting Program No. _____
WDR – Waste Discharge Requirements Order No. _____

The results of **all monitoring** conducted at the site shall be reported to the Regional Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all Constituents of Concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium. The Discharger is required to submit an updated Water Quality Protection Standard Report **by 1 November 2005** pursuant to Detection Monitoring Specification H.1 in Order No. _____.

The report shall:

a. Identify **all distinct bodies of surface and groundwater** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include the shallow and deep groundwater bearing zones and surface waters to the north and south of the facility.

b. Include a map showing the monitoring points and background monitoring points for the groundwater monitoring program, the unsaturated zone monitoring program, and all storm water monitoring points. The map shall include the point of compliance in accordance with §20405 of Title 27.

c. Evaluate the perennial direction(s) of groundwater movement within the shallow and deep groundwater bearing zones.

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

2. Constituents of Concern

The Constituents of Concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The Constituents of Concern for all Units at the facility are listed in Tables I through IV for groundwater, unsaturated zone, leachate, and surface water monitoring, respectively. Tables V and VI are incorporated by reference into Tables I through IV. Table V is a list of specific volatile organic compounds referred to by analytical method but not listed in Tables I through IV. Table V also contains inorganic "surrogates for metallic constituents," required by Subtitle D if the metallic constituents are not already included in the detection monitoring program.

Table VI contains specific inorganic and organic parameters, referred to but not listed in Tables I through IV, that are required to be monitored under 5-Year Constituents of Concern monitoring.

Monitoring parameters are Constituents of Concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through IV for the specified monitored medium.

3. Concentration Limits

For naturally occurring Constituents of Concern or non-naturally occurring Constituents of Concern that have background values, the concentration limit for each constituent of concern shall be determined as follows:

a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27; or

b. By an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27.

For non-naturally occurring Constituents of Concern that do not have background values, the concentration limit for each constituent of concern shall be taken as the PQL of the analytical method used (e.g., US-EPA Methods 8260 and 8270) in accordance with Detection Monitoring Specification H.5 of Order No. _____.

4. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the shallow and deep water bearing zones underlying the Unit(s).

5. Compliance Period

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

D. DETECTION MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, the unsaturated zone, and surface water in accordance with Detection

Monitoring Specification H.2 of Waste Discharge Requirements, Order No. _____. All monitoring shall be conducted in accordance with an approved Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, surface water and detention pond monitoring points, leachate monitoring points, and Unit leak detection systems shall be sampled and analyzed as indicated and listed in Tables I through IV and this MRP.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. Groundwater

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard.

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with applicable provisions of §20415 and §20420 of Title 27 and in accordance with a Detection Monitoring Program approved by the Executive Officer. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The existing groundwater monitoring system at Anderson Landfill consists of nine monitoring wells, seven of them completed in the deep (confined) groundwater zone and two in the shallow (perched) groundwater zone. Three of the deep wells (MW-1, MW-5, and MW-6) are not being utilized in the deep groundwater detection monitoring program (see Finding No. 42 of Order No. _____ for additional information). Two additional gas monitoring wells (GM-6 and GM-9) are utilized in the shallow groundwater monitoring program because they are completed and screened across the perched zone and consistently yield sufficient water for sampling purposes. A description of the shallow and deep groundwater monitoring points required for the detection monitoring program follows:

Deep Groundwater Bearing Zone

Well ID	Service Type	*Location	Depth	Screen Interval
MW-3	Background	340 ft. S of S. Canyon Unit	312 ft.	292 to 312 ft. bgs.
MW-4A	Compliance	110 ft. NNW of NE corner of Unit 1	362 ft.	339 to 362 ft. bgs.
MW-6 (To be monitored once Unit 5C is constructed)	Compliance	East property boundary, 450 ft. E. of SE portion of proposed Unit 5	345 ft.	314 to 344 ft. bgs.
MW-9	Compliance	Along Cambridge Road, 100 ft. NW of the future west Class II surface impoundment	358 ft.	340 to 350 ft. bgs.
MW-10	Compliance	Along Cambridge Road, 100 ft. N. of the east Class II surface impoundment	360 ft.	337 to 357 ft. bgs.
MW-11	Compliance	475 ft. NE of the NE portion of future Unit 5	Installed by 1 November 2005	To be determined
Future well MW-12 (To be monitored once Unit 4C is constructed)	Compliance	East property boundary about 700 ft. south of MW-11	Installed during construction of Unit 4C	To be determined

bgs = Below Ground Surface
* Location distances are estimated

Construction details are not currently available for future wells MW-11 and MW-12. Well MW-11 will be installed **by 1 November 2005** and is part of the current detection monitoring program. Well MW-12 will be installed during construction of the last phase of Unit 4. The Discharger is required to update the June 2005 Joint Technical Document with construction details for all new monitoring points **within 60 days** after they are constructed. MW-6 will be included into the deep groundwater detection monitoring program once construction of Unit 5C is completed.

Shallow Groundwater Bearing Zone

Well ID	Service Type	*Location	Depth	Screen Interval
MW-8	Compliance	175 ft. N. of NE corner of Unit 1	75 ft.	62 to 72 ft. bgs.
GM-6D	Compliance	175 ft. N of Cambridge Road across from NE portion of Unit 1	75 ft.	68 to 73 ft. bgs.
GM-9D	Compliance	250 ft. S. of Cambridge Road near NW portion of Unit 1	73.5 ft.	61 to 71 ft. bgs.
SM-1	Background	700 ft. S. of Unit 2A	30 ft.	Not Available

bgs = Below Ground Surface
* Location distances are estimated

The Discharger has proposed eliminating SM-1 from the detection monitoring program due to insufficient yield. However, no data is currently available regarding lack of water. If this well is consistently dry over the course of a complete hydrologic cycle, then the Discharger may propose abandoning the well effectively eliminating it from the detection monitoring program.

Quarterly, the Discharger shall determine the groundwater elevation, flow rate, and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters and the Constituents of Concern in accordance with the methods and frequencies specified in Table I. All monitoring parameters shall be graphed and tabulated so as to show historical trends at each monitoring point.

2. Unsaturated Zone Monitoring

For new units and lateral expansions, the Discharger shall install and operate an unsaturated zone detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan. Unsaturated zone samples shall be collected from the

monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequencies specified in Table II. All monitoring parameters shall be graphed and tabulated so as to show historical trends at each monitoring point. A description of the unsaturated zone monitoring points required for the detection monitoring program follows:

Lysimeter ID	Type	*Location	Depth
VZM-2Ba	Pan	Beneath LCRS sump in SE corner of Unit 2Ba	10 ft.
VZM-4A	Pan	Beneath LCRS sump in Unit 4A	To be determined
Future VZM-4B	Pan	Beneath LCRS sump in Unit 4B	To be determined
Future VZM-4C	Pan	Beneath LCRS sump in Unit 4C	To be determined
Future VZM-5	Pan	Beneath LCRS sump in Unit 5	To be determined
East Leachate Pond VZM (EPOND-VZM)	Pan	Beneath LCRS sump in east Class II surface impoundment	To be determined
Unit 4A Gas Collection Pipe (GT-4A)	Gas Collection Pipe	Between west Unit 4A liner and Units 1 and 2Ba	To be determined

* Locations are estimated
All pan lysimeters are located directly below LCRS sumps and base liners

Sample point GT-4A for the Unit 4A gas collection pipe shall be monitored quarterly for methane. Methane sample results shall be submitted with each semiannual monitoring report. If methane concentrations exceed 5% by volume, then the Discharger shall connect the gas collection pipe to the perimeter gas extraction system within 90 days of such a detection.

E. LEACHATE MONITORING

All Unit leachate collection and removal system sumps shall be inspected monthly for leachate generation. Inspection dates, the person conducting the inspection, and the results of the inspection shall be recorded in each semiannual monitoring report. Upon detection of leachate in a previously dry leachate collection and removal system, leachate shall be sampled **immediately** and analyzed for the constituents listed in Table III. Leachate shall then be sampled and analyzed annually during the fourth calendar quarter thereafter, with a retest during the following second calendar quarter if constituents are detected that have not

been previously detected. Leachate samples shall be collected and analyzed for the listed constituents in accordance with the methods and frequencies specified in Table III. The quantity of leachate pumped from each sump shall be measured and reported in the semiannual monitoring reports as Leachate Flow Rate (in gallons/day).

The permanent leachate monitoring points include the following:

Leachate Monitoring Point ID	Location Description
Unit 1 Toe Drain System (Unit 1-TD)	At southern toe of Unit 1 beneath South Canyon Unit base liner
South Canyon Unit Leachate Sump (LC-SC)	Central west portion of cell
Unit 4 Leachate Sump(s) (LC-4A, LC-4B, and LC-4C as cell development proceeds)	North central portion of each cell. Unit 4 sumps will be moved into the next cell during their construction. The sump in the previous cell will be decommissioned at that time
Future Unit 5 Leachate Sump (LC-5)	North central portion of Unit 5A near Class II surface impoundment

Note that during construction of Unit 4A, the LCRS sump for Unit 2Ba will be decommissioned and leachate from Unit 2Ba will be discharged to the LCRS for Unit 4.

Leachate that seeps to the surface from a Unit shall be contained in the Unit, sampled, and analyzed for the constituents listed in Table III. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day).

F. CLASS II SURFACE IMPOUNDMENT MONITORING

Each Class II surface impoundment LCRS shall be monitored monthly for the presence of fluid in between the primary (upper) and secondary (lower) liners. Upon detection of fluid in the Class II surface impoundment LCRS, the Discharger shall comply with Facility Specifications C.12-14 of Order No. _____. The Discharger shall monitor the remaining portions of the Class II surface impoundment monthly and report the results semiannually according to the schedule in Section B of Monitoring and Reporting Program No. ___. Monitoring parameters shall include freeboard, fluid depth, total capacity, and capacity remaining. Leachate monitoring for Class II surface impoundments shall be limited to the "Field Parameters" shown on Table III, unless the Executive Officer requests additional monitoring.

G. SURFACE WATER AND SEDIMENT DETENTION POND MONITORING

The Discharger shall install and operate a surface water detection monitoring system where appropriate that complies with the applicable provisions of §20415 and §20420 of Title 27 and has been approved by the Executive Officer.

For all monitoring points and background monitoring points assigned to surface water detection monitoring, samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequencies specified in Table IV. All monitoring parameters shall be graphed and tabulated so as to show historical trends at each sample location.

Existing sediment detention ponds are located directly below and south of the South Canyon Unit (SED-1) and in the two drainages southeast of Unit 2Ba. A new sedimentation basin (SED-4) will be constructed during installation of Unit 4A. An additional sediment detention pond (SED-5) will be constructed east of Unit 5 during construction of Unit 4C. Storm water from the site is or will be directed to these ponds prior to discharging off site to the south. The Discharger has proposed eliminating the South Canyon Sediment Detention Pond during closure of Unit 1. At that time, the pond would be filled and the channel lined with riprap. Additionally, during construction of Units 4 and 5, the two sediment detention ponds in the drainages southeast of Unit 2Ba will be eventually decommissioned as cell development proceeds. Sediment detention ponds SED-1 and SED-4 shall be monitored monthly for freeboard, fluid depth, flow rate (if applicable), and the Standard Observations described in Reporting Requirements Section B.4.g.3 of Monitoring and Reporting Program No. _____. Water quality testing of the liquids in the ponds shall be conducted semiannually. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequencies specified in Table IV. Future sedimentation pond SED-5 shall be monitored as described above once it is constructed.

During construction of Units 4 and 5, shallow perched groundwater will be collected in two different interceptor drains installed along cut slopes where the perching layer is encountered. The Unit 4 interceptor drain (IT-4) will be installed along the west side adjacent to Unit 1 and the Unit 5 interceptor drain (IT-4/5) will be installed along the north and eastern portion of Units 4 and 5. Liquids collected in IT-4 will be characterized in accordance with methods and frequencies listed in Table IV and stored in a liquid-tight below grade sump until sample results are available. After characterization, the collected liquids will be managed as leachate and discharged to the Class II surface impoundment, used as dust control over lined Units with LCRSs, or discharged in a manner approved by the Executive Officer. Liquids collected in IT-4/5 shall be characterized in accordance with the methods and frequencies list in Table IV prior to being discharged in a manner approved by the Executive Officer. Due to construction and necessary excavating required for completing the base grades of Units 4 and 5, the Discharger anticipates that the shallow perched groundwater zone will be greatly diminished or eliminated over time.

Waters that receive storm water discharges from the site shall be monitored in accordance with Anderson Landfill's Storm Water Pollution Prevention Plan and Industrial Storm Water Permit (WDID No. 5R45I005373).

H. FACILITY AND STORM EVENT MONITORING

By 15 September annually, the Discharger shall develop and submit for Executive Officer review and approval, a Winterization Plan that describes any necessary erosion control measures; construction, maintenance, or repair of precipitation and drainage control facilities; and any other measures to prevent erosion or flooding at the facility, and to prevent surface drainage from contacting or percolating through wastes. The Winterization Plan shall be implemented **prior to 15 October each year**. The second semiannual monitoring report submitted each year shall describe all repairs and measures implemented in accordance with approved Winterization Plan.

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage within 7 days following **major storm events**. The inspection shall include the Standard Observations required pursuant to Section B.4.g. of Monitoring and Reporting Program No. _____. Major storm events are defined as 1.5 inches of precipitation within a 24-hour period. Necessary repairs shall be completed within 30 days of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs. The Discharger shall include storm event inspection dates, the person conducting the inspection, the amount of precipitation received within the 24-hour period, and the results of the inspection(s) in each semiannual monitoring report. If no precipitation events of 1.5 inches or more within a 24-hour period occur during the reporting period, then the semiannual monitoring report shall state such.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

_____
(Date)

DPS/KLC: sae: 06/24/2005

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual
5-Year Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS

Parameter	Units	Frequency
Monitoring Parameters		
Volatile Organic Compounds (USEPA Method TO-14)	µg/cm^3	As Required by the Executive Officer
Methane	%	Quarterly

PAN LYSIMETERS (or other vadose zone monitoring device)

Parameter	Units	Frequency
Field Parameters		
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual
5-Year Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE III

LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Total Flow	Gallons	Monthly
Flow Rate	Gallons/Day	Monthly
Electrical Conductivity	µmhos/cm	Monthly
pH	pH units	Monthly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - Nitrogen	mg/L	Annually
Sulfate	mg/L	Annually
Calcium	mg/L	Annually
Magnesium	mg/L	Annually
Potassium	mg/L	Annually
Sodium	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Annually
5-Year Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE IV

SURFACE WATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Chloride	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Oil and Grease	µg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, see Table V)	µg/L	Semiannual
Constituents of Concern (see Table VI)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC:

USEPA Method 8260B

Acetone
Acrylonitrile
tert-Amyl methyl ether (TAME)
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
tert-Butyl alcohol (TBA)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethyl tert-butyl ether (ETBE)
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
di-Isopropyl ether (DIPE)
Methyl bromide (Bromomethene)

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methyl tert-butyl ether (MTBE)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
Styrene
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Inorganics (dissolved):	**USEPA Method**
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium (total)	6010
Chromium (hexavalent)	7199
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010B
Sulfide	9030B

Volatile Organic Compounds:

USEPA Method 8260B

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
tert-Amyl methyl ether (TAME)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
tert-Butyl alcohol (TBA)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride
Chloroform (Trichloromethane)
Chloroprene

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dribromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- l ,3-Dichloropropene
Ethylbenzene
Ethyl tert-butyl ether (ETBE)
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
di-Isopropyl ether (DIPE)
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl tert-butyl ether (MTBE)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semi-Volatile Organic Compounds:

USEPA Method 8270C - base, neutral, & acid extractables
Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

Hexachlorocyclopentadiene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole

TABLE VI

5-YEAR CONSTITUENTS OF CONCERN & APPROVED ANALYTICAL METHODS

Continued

1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Chlorophenoxy Herbicides:

USEPA Method 8l51A
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

Organophosphorus Compounds:

USEPA Method 8141A
Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Ethion
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine